

A short course on Environment and Global Change: Uncertainty & risk assessment is given by UNESCO-IHE, Netherlands, May 2-15

OBJECTIVES

The objective of the course is to get introduced to tools for risk assessment with regard to global change.

1. Get introduction to uncertainty and risk principles, tools and methodologies
2. Learn about climate change and impact studies on the environment
3. Get experience with climate change downscaling techniques and ensemble modelling

The course looks at impacts on the water resources considering floods and droughts, using a hydrological model using SWAT (Soil and Water Assessment Tool) and a hydrodynamic model.

TARGET GROUP

The course is designed for young and mid-level professionals who are involved in water management or research, and/or who want to learn about risk assessment for climate change.

COURSE CONTENTS

Climate change and its impact on hydrology, Prof. S. Uhlenbrook (UNESCO-IHE)

Introduction to the effects of climate variability on the hydrology.

Spatial Modelling using PCRaster (Willem van Deursen)

Introduction to spatial modelling using PCRaster software. The PCRaster Environmental Modelling language is a computer language for construction of iterative spatio-temporal environmental models. It runs in the PCRaster interactive raster GIS environment that supports immediate pre- or post-modelling visualisation of spatio-temporal data.

Land use change modelling, Prof. Peter Verburg (University Amsterdam, Netherlands)

Introduction to land use modelling in relation to water modelling and management; Modelling scenarios of land use change and their impacts and feedbacks on the hydrological system; Hands-on training for the tool CLUE.

Downscaling of climate change scenarios, Dr. Y. Xuan, PhD (UNESCO-IHE, Netherlands)

Introduction to the concept of downscaling, general downscaling methods used to fit GCM data into catchment modelling in studying climate change impacts on local scale.

Uncertainty and climate, Dr. A. van Griensven, PhD (UNESCO-IHE, Netherlands)

Introduction to uncertainty analysis methods such as Monte-Carlo sampling. Bayesian averaging and model ensembles. Exercises on the Nzoia river basin using Soil and Water Assessment Tool (SWAT) and SWAT-CUP (auto-calibration and uncertainty).

Probabilistic risk assessment, Dr. G. Di Baldassarre, PhD (UNESCO-IHE, Netherlands)

The concepts of vulnerability, hazard, risk. Description of the most common sources of uncertainty and variability in the risk assessment process. Deterministic and probabilistic risk

assessment. Example applications of probabilistic approaches for assessing risk.

COURSE FEE

The course fee is 1500 Euro.

PREREQUISITES

A masters or bachelors degree in engineering or science with some knowledge in basic hydraulics, basic hydrology and basic statistics.

MORE INFORMATION AND REGISTRATION

For more information on the course please contact Dr. ir. Ann van Griensven (a.vangriensven@unesco-ihe.org) for questions related to the contents or Ms. Claudia Brakel (info@unesco-ihe.org) for the practical aspects or have a look at the website.

http://www.unesco-ihe.org/education/short_courses/regular_short_courses/

Deadline of registration : April 15, 2011